

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A transfer apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt;

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt as a result of an unevenness in a thickness of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed.

Claim 2 (Original): The transfer apparatus according to claim 1, wherein the frequency correcting unit includes an extracting unit that extracts only the frequency component that is fluctuating; and

a correction control unit that performs correction of the frequency component that is fluctuating extracted by the extracting unit.

Claim 3 (Original): The transfer apparatus according to claim 2, wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to any one of components of the belt and components of a driving system of the belt.

Claim 4 (Original): The transfer apparatus according to claim 2, wherein the frequency component that is fluctuating is not greater than 100 hertz.

Claim 5 (Canceled).

Claim 6 (Original): The transfer apparatus according to claim 3, wherein the component of the driving system includes a roller that drives the belt and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by an eccentricity of the roller.

Claim 7 (Original): The transfer apparatus according to claim 6, wherein the fluctuation in the speed of the belt due to the frequency component that is fluctuating includes a change in an amount of the eccentricity of the roller with a change in a temperature of an environment.

Claim 8 (Original): The transfer apparatus according to claim 3, wherein the component of the belt-driving system includes a tension roller that is in contact with the belt and stretches the belt with a predetermined tension, and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing the tension roller against the belt.

Claim 9 (Currently Amended): The transfer apparatus according to claim 2, wherein the fluctuation in the speed of the belt due to the frequency component that is fluctuating is also caused by unevenness in a thickness of the belt and eccentricity of the roller that drives the belt.

Claim 10 (Currently Amended): The transfer apparatus according to claim 2, wherein the fluctuation in speed due to the frequency component that is fluctuating is due to ~~unevenness in a thickness of the belt~~, eccentricity of the roller that drives the belt[[,]] and fluctuation in thrust due to pressing the tension roller against the belt.

Claim 11 (Original): The transfer apparatus according to claim 2, wherein the belt is an intermediate transfer belt that transfers the images on the plurality of photosensitive drums by directly transferring the images one after another so that the images are superimposed.

Claim 12 (Original): The transfer apparatus according to claim 2, wherein the belt is a recording-material carrier belt that carries the recording material and the images on the plurality of photosensitive drums are transferred to the recording material one after another so that the images are superimposed.

Claim 13 (Original): The transfer apparatus according to claim 1, wherein the frequency-control unit inputs the speed fluctuations and while inputting the speed fluctuations, performs correction of only the frequency component that is fluctuating that is smaller than a predetermined frequency, to adjust the speed of the belt to the target speed.

Claim 14 (Original): The transfer apparatus according to claim 13, wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to components of the belt or components of a belt-driving system.

Claim 15 (Original): The transfer apparatus according to claim 13, wherein the frequency component that is fluctuating of low frequency is not greater than 100 hertz.

Claim 16 (Canceled).

Claim 17 (Original): The transfer apparatus according to claim 3, wherein the component of the belt-driving system includes a roller that drives the belt and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by eccentricity of the roller.

Claim 18 (Original): The transfer apparatus according to claim 17, wherein the fluctuation in the speed of the belt due to the frequency component that is fluctuating includes a change in an amount of the eccentricity of the roller with a change in a temperature of an environment.

Claim 19 (Original): The transfer apparatus according to claim 14, wherein the component of the belt-driving system includes a tension roller that is in contact with the belt and stretches the belt with a predetermined tension, and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing the tension roller against the belt.

Claim 20 (Currently Amended): The transfer apparatus according to claim 13, wherein the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by ~~unevenness in a thickness of the belt~~ and eccentricity of the roller that drives the belt.

Claim 21 (Currently Amended): The transfer apparatus according to claim 13, wherein the fluctuation in speed due to the frequency component that is fluctuating is due to ~~unevenness in thickness of the belt~~, eccentricity of the roller that drives the belt[[,]] and fluctuation in thrust due to pressing the tension roller against the belt.

Claim 22 (Original): The transfer apparatus according to claim 13, wherein the belt is an intermediate transfer belt that transfers the images on the plurality of photosensitive drums by directly transferring the images one after another so that the images are superimposed.

Claim 23 (Original): The transfer apparatus according to claim 13, wherein the belt is a recording-material carrier belt that carries the recording material and the images on the plurality of photosensitive drums are transferred to the recording material one after another so that the images are superimposed.

Claim 24 (Currently Amended): An image forming apparatus comprising:  
a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt; and

a transfer apparatus that includes

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt as a result of an unevenness in a thickness of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed.

Claim 25 (Original): The image forming apparatus according to claim 24, wherein the frequency correcting unit includes an extracting unit that extracts only the frequency component that is fluctuating; and

a correction control unit that performs correction of the frequency component that is fluctuating extracted by the extracting unit.

Claim 26 (Canceled).

Claim 27 (Original): The image forming apparatus according to claim 25, wherein the component of the driving system includes a roller that drives the belt and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by an eccentricity of the roller.

Claim 28 (Original): The image forming apparatus according to claim 25, wherein the component of the belt-driving system includes a tension roller that is in contact with the

belt and stretches the belt with a predetermined tension, and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing the tension roller against the belt.

Claim 29 (Original): The image forming apparatus according to claim 25, wherein the belt is an intermediate transfer belt that transfers the images on the plurality of photosensitive drums one after another so that the images are superimposed and a transferring section is provided on a bottom side of the intermediate transfer belt to transfer the images on the intermediate transfer belt to the recording material.

Claim 30 (Original): The image forming apparatus according to claim 24, wherein the frequency-control unit inputs the speed fluctuations and while inputting the speed fluctuations, performs correction of only the frequency component that is fluctuating that is smaller than a predetermined frequency, to adjust the speed of the belt to the target speed.

Claim 31 (Canceled).

Claim 32 (Original): The image forming apparatus according to claim 30, wherein the component of the driving system includes a roller that drives the belt and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by an eccentricity of the roller.

Claim 33 (Original): The image forming apparatus according to claim 30, wherein the component of the belt-driving system includes a tension roller that is in contact with the belt and stretches the belt with a predetermined tension, and the fluctuation in the speed of

the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing the tension roller against the belt.

Claim 34 (Original): The image forming apparatus according to claim 30, wherein the belt is an intermediate transfer belt that transfers the images on the plurality of photosensitive drums one after another so that the images are superimposed and a transferring section is provided on a bottom side of the intermediate transfer belt to transfer the images on the intermediate transfer belt to the recording material.

Claim 35 (Currently Amended): A method of correcting a speed of a belt, comprising:

reading a scale on the belt to obtain scale information, the belt being rotatable and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of a portion of the belt;

calculating a speed of the belt from the scale information; and

correcting fluctuating frequency component of low frequency smaller than a predetermined frequency that is developed during operation as a result of an unevenness in a thickness of the belt, from among the speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed.

Claim 36 (Original): The method according to claim 35, wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to any one of components of the belt and components of a driving system of the belt.



Claim 37 (Original): The method according to claim 35, wherein the frequency component that is fluctuating is not greater than 100 hertz.

Claim 38 (Canceled).

Claim 39 (Original): The method according to claim 36, wherein the component of the driving system includes a roller that drives the belt and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by an eccentricity of the roller.

Claim 40 (Original): The method according to claim 36, wherein the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing a tension roller against the belt.

Claim 41 (Currently Amended): The method according to claim 36, wherein the fluctuation in speed due to the frequency component that is fluctuating is due to ~~unevenness in a thickness of the belt~~, eccentricity of a roller that drives the belt[[,]] and fluctuation in thrust due to pressing a tension roller against the belt.

Claim 42 (New): A transfer apparatus comprising:  
a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt;  
a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency correcting unit includes an extracting unit that extracts only the frequency component that is fluctuating and a correction control unit that performs correction of the frequency component that is fluctuating extracted by the extracting unit,

wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to any one of components of the belt and components of a driving system of the belt, and

wherein the fluctuation in speed of the belt due to the frequency component that is fluctuating is caused by unevenness in a thickness of the belt.

Claim 43 (New): A transfer apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt;

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency correcting unit includes an extracting unit that extracts only the frequency component that is fluctuating and a correction control unit that performs correction of the frequency component that is fluctuating extracted by the extracting unit,

wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to any one of components of the belt and components of a driving system of the belt, and

wherein the component of the belt-driving system includes a tension roller that is in contact with the belt and stretches the belt with a predetermined tension, and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing the tension roller against the belt.

Claim 44 (New): A transfer apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt;

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information;

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency correcting unit includes an extracting unit that extracts only the frequency component that is fluctuating and a correction control unit that performs correction of the frequency component that is fluctuating extracted by the extracting unit, and

wherein the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by unevenness in a thickness of the belt and eccentricity of the roller that drives the belt.

Claim 45 (New): A transfer apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt;

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a

predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency correcting unit includes an extracting unit that extracts only the frequency component that is fluctuating and a correction control unit that performs correction of the frequency component that is fluctuating extracted by the extracting unit,

wherein the fluctuation in speed due to the frequency component that is fluctuating is due to unevenness in a thickness of the belt, eccentricity of the roller that drives the belt, and fluctuation in thrust due to pressing the tension roller against the belt.

Claim 46 (New): A transfer apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt;

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency-control unit inputs the speed fluctuations and while inputting the speed fluctuations, performs correction of only the frequency component that is

fluctuating that is smaller than a predetermined frequency, to adjust the speed of the belt to the target speed,

wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to components of the belt or components of a belt-driving system, and

wherein the fluctuation in speed due to the frequency component that is fluctuating of low frequency is caused by unevenness in a thickness of the belt.

Claim 47 (New): A transfer apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt;

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency-control unit inputs the speed fluctuations and while inputting the speed fluctuations, performs correction of only the frequency component that is fluctuating that is smaller than a predetermined frequency, to adjust the speed of the belt to the target speed,

wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to components of the belt or components of a belt-driving system, and

wherein the component of the belt-driving system includes a tension roller that is in contact with the belt and stretches the belt with a predetermined tension, and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing the tension roller against the belt.

Claim 48 (New): A transfer apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt;

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency-control unit inputs the speed fluctuations and while inputting the speed fluctuations, performs correction of only the frequency component that is fluctuating that is smaller than a predetermined frequency, to adjust the speed of the belt to the target speed, and

wherein the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by unevenness in a thickness of the belt and eccentricity of the roller that drives the belt.

Claim 49 (New): A transfer apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt;

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency-control unit inputs the speed fluctuations and while inputting the speed fluctuations, performs correction of only the frequency component that is fluctuating that is smaller than a predetermined frequency, to adjust the speed of the belt to the target speed, and

wherein the fluctuation in speed due to the frequency component that is fluctuating is due to unevenness in thickness of the belt, eccentricity of the roller that drives the belt, and fluctuation in thrust due to pressing the tension roller against the belt.



Claim 50 (New): An image forming apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt; and

a transfer apparatus that includes

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency correcting unit includes an extracting unit that extracts only the frequency component that is fluctuating and a correction control unit that performs correction of the frequency component that is fluctuating extracted by the extracting unit, and

wherein the fluctuation in speed of the belt due to the frequency component that is fluctuating is caused by unevenness in a thickness of the belt.

Claim 51 (New): An image forming apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt; and

a transfer apparatus that includes

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency correcting unit includes an extracting unit that extracts only the frequency component that is fluctuating and a correction control unit that performs correction of the frequency component that is fluctuating extracted by the extracting unit, and

wherein the component of the belt-driving system includes a tension roller that is in contact with the belt and stretches the belt with a predetermined tension, and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing the tension roller against the belt.

Claim 52 (New): An image forming apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt; and

a transfer apparatus that includes

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency-control unit inputs the speed fluctuations and while inputting the speed fluctuations, performs correction of only the frequency component that is fluctuating that is smaller than a predetermined frequency, to adjust the speed of the belt to the target speed, and

wherein the fluctuation in speed of the belt due to the frequency component that is fluctuating is caused by unevenness in a thickness of the belt.

Claim 53 (New): An image forming apparatus comprising:

a belt that rotates and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of entire of the belt; and

a transfer apparatus that includes

a sensor that reads the scale on the belt to obtain scale information;

an actual speed calculating unit that calculates a speed of the belt from the scale information; and

a control unit that provides a control to correct speed of the belt according to the speed calculated,

wherein the control unit includes a frequency-correcting unit that performs correction of only a frequency component that is fluctuating of low frequency that is smaller than a

predetermined frequency that is developed due to a change in a speed of the belt, from among speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency-control unit inputs the speed fluctuations and while inputting the speed fluctuations, performs correction of only the frequency component that is fluctuating that is smaller than a predetermined frequency, to adjust the speed of the belt to the target speed, and

wherein the component of the belt-driving system includes a tension roller that is in contact with the belt and stretches the belt with a predetermined tension, and the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing the tension roller against the belt.

Claim 54 (New): A method of correcting a speed of a belt, comprising:

reading a scale on the belt to obtain scale information, the belt being rotatable and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of a portion of the belt;

calculating a speed of the belt from the scale information; and

correcting fluctuating frequency component of low frequency smaller than a predetermined frequency that is developed during operation, from among the speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to any one of components of the belt and components of a driving system of the belt, and

wherein the fluctuation in speed of the belt due to the frequency component that is fluctuating is caused by unevenness in a thickness of the belt.

Claim 55 (New): A method of correcting a speed of a belt, comprising:

reading a scale on the belt to obtain scale information, the belt being rotatable and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of a portion of the belt;

calculating a speed of the belt from the scale information; and

correcting fluctuating frequency component of low frequency smaller than a predetermined frequency that is developed during operation, from among the speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to any one of components of the belt and components of a driving system of the belt, and

wherein the fluctuation in the speed of the belt due to the frequency component that is fluctuating is caused by a fluctuation in thrust due to pressing a tension roller against the belt.

Claim 56 (New): A method of correcting a speed of a belt, comprising:

reading a scale on the belt to obtain scale information, the belt being rotatable and carries either one of a plurality of images directly and a recording material with a plurality of images, a scale is provided along at least one side of a portion of the belt;

calculating a speed of the belt from the scale information; and

correcting fluctuating frequency component of low frequency smaller than a predetermined frequency that is developed during operation, from among the speed fluctuations of the belt to adjust the speed of the belt to a predetermined target speed,

wherein the frequency component that is fluctuating appears repeatedly on periodic basis due to any one of components of the belt and components of a driving system of the belt, and

wherein the fluctuation in speed due to the frequency component that is fluctuating is due to unevenness in a thickness of the belt, eccentricity of a roller that drives the belt, and fluctuation in thrust due to pressing a tension roller against the belt.